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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/727,886	12/04/2003	Nitendra Rajput	JP920030180US1	8810
7590 Frederick W. Gibb, III McGinn & Gibb, PLLC Suite 304 2568-A Riva Road Annapolis, MD 21401			EXAMINER COLUCCI, MICHAEL C	
			ART UNIT 2609	PAPER NUMBER
			MAIL DATE 06/01/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/727,886

Applicant(s)

RAJPUT ET AL.

Examiner

Michael C. Colucci

Art Unit

2609

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in **Graham v. John Deere Co., 383 U.S. 1, 148 USPQ 459 (1966)**, that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows: (See MPEP Ch. 2141)

- a. Determining the scope and contents of the prior art;
 - b. Ascertaining the differences between the prior art and the claims in issue;
 - c. Resolving the level of ordinary skill in the pertinent art; and
 - d. Evaluating evidence of secondary considerations for indicating obviousness or nonobviousness.
2. Claims 1, 5-9, 13-15, 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Poznanski et al (herein after Poz), US 6397174 in view of Galler et al (herein after Galler), US 5991720.

Re claim 1, "Mixed language expressions", Poz teaches the processing of text within natural languages as well as the processing of the text by indexing a bilingual or multilingual dictionary, where a dictionary is functionally equivalent to "history" (Poz Col. 2 line 19-26).

"Storing word equivalency probabilities", Poz teaches the use of a bilingual dictionary containing bilingual equivalencies (Poz Col. 4 line 34-59). Poz also teaches equivalencies based on a unified measure of probability (Poz Col. 6 line 38-45).

"Relating words of a first language and words in at least one other language", Poz teaches a multilingual dictionary, which will have a necessary feature to utilize several languages (Poz Col. 2 line 19-26).

"Monolingual word history" based on a "mixed language word history", Poz teaches a dictionary composed of monolingual or multilingual text (Poz Col. 2 line 19-26). "Stored word equivalency probabilities", Poz teaches the use of a bilingual dictionary containing bilingual equivalencies (Poz Col. 4 line 34-59). However Poz fails to teach of more than one dictionary where the first of the dictionaries is generated in reference to a second. Galler teaches the processing of results into a list of candidates which are aligned with a dictionary of valid names in order to generate two lists of valid names (Galler Abstract). Therefore, the combined teaching of Poz and Galler would have rendered obvious the generation of a dictionary or history of words based on equivalence probability in reference to a mixed language.

"Monolingual next word hypothesis probabilities", Poz teaches probabilities assigned dependent on the following word within a text, (Poz Col. 6 line 14-17). However Poz fails to discretely teach of a next word hypothesis probability. Galler teaches the maximum likelihood (highest probability) carried forward where *node n* generates the next word hypothesis based on the maximum likelihood from *node n* (Galler Col. 9 line 47-57). Therefore, the combined teaching of Poz and Galler would have rendered obvious the generation of next word hypothesis probabilities based upon a word history.

"Determining a probability of a next word in a mixed language expression based upon the monolingual next word hypothesis probabilities and the stored word equivalence probabilities", Poz teaches probabilities assigned dependent on the following word within a text, (Poz Col. 6 line 14-17). However Poz fails to discretely teach of a next word hypothesis probability. Galler teaches the maximum likelihood (highest probability) carried forward where *node n* generates the next word hypothesis based on the maximum likelihood from *node n* (Galler Col. 9 line 47-57). Therefore, the combined teaching of Poz and Galler would have rendered obvious determination of the probability of a next word in reference to the combination of the probabilities of the next word hypothesis and word equivalencies.

Claim 5 has been analyzed and rejected with respect to claim 1. A "corpus" is a collection of linguistic speech or text data, as is a dictionary or word history. When read in light of the specification, the term "parallel" is in reference to equivalencies between two languages.

Claim 6 has been analyzed and rejected with respect to claim 1. Poz teaches of translation from a first language to a second language (such as English to Dutch), where either English or Dutch is a foreign language in relation to one another (Poz Col. 4 line 34-39).

Claim 7 has been analyzed and rejected with respect to claim 5. Claim 5 is more descriptive and further limited than claim 7 as to incorporate the use of probabilities as well as a parallel corpus.

Claims 8 has been analyzed and rejected with respect to claim 1. Claim 8 is the product of the method of claim 1.

Claims 9 has been analyzed and rejected with respect to claim 1. Claim 9 is the product of the method of claim 1.

Claims 13 has been analyzed and rejected with respect to claim 5. Claim 13 is the product of the method of claim 5.

Claims 14 has been analyzed and rejected with respect to claim 6. Claim 14 is the product of the method of claim 6.

Claims 15 has been analyzed and rejected with respect to claim 7. Claim 15 is the product of the method of claim 7.

Claims 19 has been analyzed and rejected with respect to claim 5. Claim 19 is the system of the method of claim 5.

Claims 20 has been analyzed and rejected with respect to claim 6. Claim 20 is the system of the method of claim 6.

Claims 21 has been analyzed and rejected with respect to claim 7. Claim 21 is the system of the method of claim 7.

Claims 2-3, 10-11, 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Poznanski et al (herein after Poz), US 6397174 in view of Galler et al (herein after Galler), US 5991720 as applied to claim 1 above and further in view of Bahl et al (herein after Bahl), US 4759068.

Re claim 2, "Monolingual next word hypothesis probabilities", the combined teaching of Poz and Galler teaches probabilities assigned dependent on the following word within a text, (Poz Col. 6 line 14-17). The combined teaching also teaches equivalencies based on a unified measure of probability (Poz Col. 6 line 38-45). However the combined teaching fails to teach "summing products" of the former two probabilities. Bahl teaches the state of a machine dependent on the sum of two probabilities (a) and (b) multiplied together. Bahl also goes as far to incorporate the product of a third probability prior to the summation (Col. 13 line 56-68). Therefore, the combined teaching of Poz, Galler, and Bahl would have rendered obvious the summation of the product of word equivalency and next word hypothesis probabilities.

Re claim 3, "monolingual next word hypothesis probability is a statistical language model", the combined teaching of Poz and Galler teaches next word hypothesis probabilities. However the combined teaching fails to teach that the probability is a statistical language model. A language model such as a Markov model is a type of statistical model. Bahl teaches a Markov model (Bahl Abstract) for phone machines as well as the storage of statistical probabilities (Bahl Col. 16 line 19-25). Therefore, the combined teaching of Poz, Galler, and Bahl would have rendered obvious the establishment of a monolingual next word hypothesis probability defined as a statistical language model.

Claims 10 has been analyzed and rejected with respect to claim 2. Claim 10 is the product of the method of claim 2.

Claims 11 has been analyzed and rejected with respect to claim 3. Claim 11 is the product of the method of claim 3.

Claims 16 has been analyzed and rejected with respect to claim 2. Claim 16 is the system of the method of claim 2.

Claims 17 has been analyzed and rejected with respect to claim 3. Claim 17 is the system of the method of claim 3.

Claims 4, 12, 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Poznanski et al (herein after Poz), US 6397174 in view of Galler et al (herein after Galler), US 5991720 as applied to claim 1 above and further in view of Lee et al (herein after Lee), US 7165019.

Re claim 4, "converting a mixed language", The combined teaching of Poz and Galler disclose the implementation of a equivalency probability but fail to discretely teach the step of converting a mixed language. Lee teaches the handling of mixed-language input of one form into another type of text (Lee Col. 14 line 31-51). Therefore, the combined teaching of Poz, Galler, and Lee would have rendered obvious the use of a monolingual word equivalence probability applied to the step of converting a mixed language word sequence.

Claims 12 has been analyzed and rejected with respect to claim 4. Claim 12 is the product of the method of claim 4.

Claims 18 has been analyzed and rejected with respect to claim 4. Claim 18 is the system of the method of claim 4.

Examiner's Note

The referenced citations made in the rejection(s) above are intended to exemplify areas in the prior art document(s) in which the examiner believed are the most relevant to the claimed subject matter. However, it is incumbent upon the applicant to analyze the prior art document(s) in its/their entirety since other areas of the document(s) may be relied upon at a later time to substantiate examiner's rationale of record. A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. W.L. Gore & associates, Inc. v. Garlock, Inc., 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984). However, "the prior art's mere disclosure of more than one alternative does not constitute a teaching away from any of these alternatives because such disclosure does not criticize, discredit, or otherwise discourage the solution claimed...." In re Fulton, 391 F.3d 1195, 1201, 73 USPQ2d 1141, 1146 (Fed. Cir. 2004).

Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael C. Colucci whose telephone number is (571)270-1847. The examiner can normally be reached on 7:30 am - 5:00 pm , alt. Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vu Le can be reached on (571)-272-7332. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2621

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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